

MATERIAL SAFETY DATA SHEET



SOLARIS

DATE PREPARED: 10/24/1996

MSDS No: 4953

ORTHO® Home Orchard Spray

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ORTHO® Home Orchard Spray

PRODUCT DESCRIPTION: Insecticide/Fungicide

MANUFACTURER

The SOLARIS Group
of Monsanto Company

P.O. Box 5008

San Ramon, CA 94583-0808

EPA REG. NO.: 239-568 PN: 1587G

24 HR. EMERGENCY TELEPHONE NUMBERS

Emergency Phone 800-454-2333

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Chemical Name</u>	<u>Wt. %</u>	<u>CAS Registry #</u>
Captan, N-Trichloromethylthio-4-cyclohexene-1,2-dicarboximide	14.7	133-06-2
Malathion, Dimethyldithiophosphate-diethyl Mercaptosuccinate	7.5	121-75-5
Methoxychlor, 1,1,1-trichloro-2,2-bis(p-methoxyphenyl) ethane	15	72-43-5
INERT INGREDIENTS	~ 62.8	

"Inert Ingredients" is a term defined by the U.S. Environmental Protection Agency under the Federal Insecticide, Fungicide, and Rodenticide Act (40 CFR 158.153). It refers to any substance, other than an active ingredient, which is intentionally added to a pesticide product. Some inert ingredients may be hazardous chemicals, as defined by the Federal OSHA Hazard Communication Standard (29 CFR 1910.1200). The hazards associated with these inert ingredients have been included in this document.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE: Grey to beige fine powder

IMMEDIATE CONCERNS: - CAUSES IRREVERSIBLE EYE DAMAGE

- DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING
- HARMFUL IF SWALLOWED
- MAY CAUSE AN ALLERGIC SKIN REACTION
- KEEP OUT OF REACH OF CHILDREN

POTENTIAL HEALTH EFFECTS

EYES: This substance is a severe eye irritant and could cause permanent damage to your eyes and blindness. The degree of the injury will depend on the amount of material that gets into the eye and the speed and thoroughness of the first aid treatment. Symptoms of overexposure may include discomfort, irritation and redness, and blurred vision. See Toxicological Information, section 11.

SKIN: This substance is not expected to cause prolonged or significant skin irritation. If absorbed through the skin, this substance is considered practically non-toxic to internal organs. See Toxicological Information, section 11.

INGESTION: This substance is slightly toxic to internal organs if swallowed. The degree of injury will depend on the amount absorbed from the gut. See section 11, Toxicological Information.

INHALATION: Breathing the vapor may be irritating to the respiratory tract. If inhaled, this substance is considered practically non-toxic to internal organs. Read the Toxicological Information section (11) of this document for more information.

4. FIRST AID MEASURES

EYES: Immediately hold eyelids open and flush eyes with fresh water for at least 15 minutes. Remove contact lenses if worn. Get medical attention immediately.

SKIN: No first aid procedures are required. As a precaution, wash skin thoroughly with soap and water. Remove and wash contaminated clothing.

INGESTION: If swallowed, give water or milk to drink and telephone for medical advice. Consult medical personnel before inducing vomiting. If medical advice cannot be obtained, then take the person and product container to the nearest medical emergency treatment center or hospital.

INHALATION: If respiratory discomfort or irritation occurs, move the person to fresh air. See a doctor if discomfort or irritation continues.

NOTES TO PHYSICIAN: This material contains a cholinesterase inhibitor. Measurement of blood cholinesterase activity may be useful in monitoring exposure. If signs of cholinesterase inhibition appear, atropine sulfate is antidotal. 2-PAM (PROTOPAM) is also antidotal and may be used in conjunction with atropine but should not be used alone.

ADDITIONAL INFORMATION: Medical Information: Call day or night,

1-800-454-2333.

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: Nonflammable

EXTINGUISHING MEDIA: Use appropriate agent for surrounding fire - product is not combustible.

HAZARDOUS COMBUSTION PRODUCTS: Thermal decomposition may produce hydrogen chloride, carbonyl sulfide, carbon disulfide, thiophosgene, dimethylsulfide, sulfur dioxide, carbon monoxide, phosphorous-pentoxide and nitrogen oxides.

FIRE FIGHTING PROCEDURES: Smoke from fires involving this material may present unusual hazards. Avoid breathing smoke and mists. Avoid contact with fallout and runoff. Minimize the amount of water used for fire fighting. Do not enter any enclosed area without full protective equipment, including self-contained breathing equipment. Contain and isolate runoff and debris for proper disposal. Read the entire document.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Sweep up material and use according to label instructions or dispose of in the trash.

LARGE SPILL: Clean up spills immediately, observing precautions in Exposure Controls/ Personal Protection section. Vacuum with machines equipped with high efficiency filters or sweep up material and place in a disposable container. Scrub contaminated area with detergent and water using a stiff broom. Pick up liquid with Oil Dry, cat litter, clay, rags or other absorbent and place in a disposable container. Dispose of in accordance with instructions in Section 13. "DISPOSAL".

7. HANDLING AND STORAGE

GENERAL PROCEDURES: Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Avoid contamination of feed, foodstuffs. Store in a cool dry place, preferably in a locked storage area. Do not store diluted spray.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide natural or mechanical ventilation to control exposure levels below airborne exposure limits (see below). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

PERSONAL PROTECTION

EYES AND FACE: Where there is potential for eye contact, wear chemical goggles and have eye flushing equipment available.

For application of product in accordance with label instructions, no special eye protection is needed.

SKIN: Wear appropriate protective clothing and chemical resistant gloves to prevent skin contact. Consult glove manufacturer to determine appropriate type of glove for given application. Wash contaminated skin promptly. Launder contaminated clothing and clean protective equipment before reuse. Wash thoroughly after handling.

Attention! Repeated or prolonged contact may cause allergic skin reaction in some people.

RESPIRATORY: Avoid breathing dust. Use NIOSH/MSHA approved respiratory protection equipment (full facepiece recommended) when airborne exposure limits are exceeded (see below). If used, full facepiece replaces need for chemical goggles. Consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH/MSHA or the manufacturer. Respiratory protection programs must comply with 29 C.F.R. 1910.134.

For application of product in accordance with label instructions, no special respiratory protection is required.

OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200):

<u>Chemical Name</u>	<u>EXPOSURE LIMITS</u>		
	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>A</u>
Kaolin Clay	Respirable 5 mg/m ³	2 mg/m ³	No
Diatomaceous Earth, Natural	None	10 mg/m ³	No
N-Trichloromethylthio-4-cyclohexene-1,2-dicarboximide	None	Total 5 mg/m ³	No
Dimethyldithiophosphate-diethyl Mercaptosuccinate	15 mg/m ³	10 mg/m ³	No
1,1,1-trichloro-2,2-bis(p-methoxyphenyl) ethane	Total Dust 15 mg/m ³	10 mg/m ³	No
Magnesium Carbonate	5 mg/m ³	3 mg/m ³	No
Silica, amorphous	None	Respirable 3 mg/m ³	No

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Powder

APPEARANCE: Grey to beige fine powder

pH: No Data Available

PERCENT VOLATILE: 0

SOLUBILITY IN WATER: Dispersible in water

DENSITY: 25 -- 26 lb/cu. ft.

10. STABILITY AND REACTIVITY

STABLE: YES

HAZARDOUS POLYMERIZATION: YES

POLYMERIZATION: May occur at temperatures above 100°C.

HAZARDOUS DECOMPOSITION: Exposure to heat or flame may produce carbon monoxide, hydrogen chloride and nitrogen oxides.

INCOMPATIBLE MATERIALS: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

11. TOXICOLOGICAL INFORMATION

ACUTE

EYES: The results of the rabbit eye irritation study indicate that this product is moderate to severely irritating to eyes with all irritation clearing by day 14. EPA FIFRA toxicity category - II.

DERMAL LD₅₀: Practically non-toxic, (Rat) LD₅₀ >8.5 gm/Kg; EPA FIFRA toxicity category - IV. Slightly irritating to skin (Rabbit); EPA FIFRA toxicity category - IV.

ORAL LD₅₀: This product is slightly toxic if ingested. Rat LD₅₀ = 4.133 g/kg. EPA FIFRA toxicity category - III.

INHALATION LC₅₀: This product if inhaled is practically nontoxic. 4 hour inhalation LC₅₀ for rats > 84.6 mg/liter/hour. EPA FIFRA toxicity category - IV.

SENSITIZATION: This product contains captan, a chemical that has demonstrated a positive skin sensitization response in the Buehler guinea pig test.

CARCINOGENICITY:

CARCINOGENICITY COMMENTS: There is no evidence to support that the components in this product are carcinogens. Although the product contains captan, results of a lifetime feeding study demonstrated an increased incidence in intestinal tumors when the chemical was fed in the daily lifetime diet of mice at high dose levels of 6,000 and 16,000 ppm. The dose of captan had to be sufficient to overwhelm the animals' detoxification mechanism. It is important to note that mammals rapidly detoxify captan, such that ingestion of low dietary dose levels would not be absorbed into the systemic circulation. Results of three rat chronic investigations were negative when captan was administered in the daily diet at dose levels of 2,000 ppm.

Methoxychlor and malathion were negative in the toxicology chronic feeding studies.

NEUROTOXICITY: Malathion has not demonstrated the potential to produce organophosphate induced delayed neuropathy. Results of chicken neurotoxicity studies were negative.

TERATOGENICITY: There are no scientific findings or results of teratology studies that support the components in this product causing birth defects. Captan has been studied in 4 species including the monkey, for a total of 17 investigations.

REPRODUCTIVE TOXIN: The components in this product are not considered to be reproductive toxins. Results of both one and three generation captan rat reproduction studies were negative. The NOEL's for the two studies regarding systemic toxicity was 12.5 mg/kg/dy.

MUTAGENICITY: The components in this product are not considered to be mutagens.

GENERAL COMMENTS: This product contains an organic phosphorus insecticide which inhibits the enzyme cholinesterase. Signs and symptoms which may be seen, usually within 12 hours following overexposure, may include, but may not be limited to, headache, dizziness, weakness, constriction of the pupil of the eye, blurred or dark vision, excessive salivation or nasal discharge, profuse sweating, abdominal cramps, nausea and vomiting. Incontinence, unconsciousness and convulsions indicate severe poisoning. In untreated severe poisoning, respiratory depression or cardiac arrest may be fatal. Repeated exposure may result in depletion of cholinesterase. Additional slight exposure may result in signs and symptoms. Note to Physician: Measurement of blood cholinesterase activity may be useful in monitoring exposure. If signs of cholinesterase inhibition appear, atropine sulfate is antidotal. 2-PAM (PROTOPAM) is also antidotal and may be used in conjunction with atropine but should not be used alone. This product contains an organochlorine insecticide. Chronic intoxication following prolonged or continued exposures may result in fainting, muscle spasms, tremors, or loss of weight.

COMMENTS: See Section 16 for definition of EPA FIFRA toxicity categories.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL DATA: No data available.

ECOTOXICOLOGICAL INFORMATION: This pesticide is toxic to fish, aquatic invertebrates, and aquatic life stages of amphibians. Do not apply directly to water. Drift and runoff may be hazardous to aquatic organisms in areas near the application site. Do not contaminate water when disposing of equipment washwaters. This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

13. DISPOSAL CONSIDERATIONS

FOR LARGE SPILLS: Material collected that cannot be reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, State or local procedures.

PRODUCT DISPOSAL: The Solaris Group is committed to responsible environmental practices and recommends that all of the product be used up, carefully following all label directions and precautions.

If necessary to dispose of partially filled product container, then securely wrap it in several layers of newspaper and discard in trash.

EMPTY CONTAINER: Do not reuse empty container. Discard container in trash.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

PROPER SHIPPING NAME: Consumer Commodity, ORM-D, RQ (Methoxychlor)

PRIMARY HAZARD CLASS/DIVISION: None

UN/NA NUMBER: NONE

PACKING GROUP: NO

U.S. SURFACE FREIGHT CLASS: NMFC NBR. 102120

AIR (ICAO/IATA)

PROPER SHIPPING NAME: Consumer Commodity

SPECIAL SHIPPING NOTES: The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

PRODUCT CLASSIFICATION UNDER SECTION 311 OF SARA				
ACUTE:	CHRONIC:	FIRE:	REACTIVITY:	PRESSURE
YES	NO	NO	NO	GENERATING: NO

313 REPORTABLE INGREDIENTS: Malathion (CAS No. 121-75-5), Methoxychlor (CAS No. 72-43-5), Captan (CAS No. 133-06-2)

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

CERCLA RQ: Methoxychlor = 1 lb., Malathion = 100 lbs.; Captan = 10 lbs.

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA REGULATORY: All non FIFRA regulated components are on the US EPA's TSCA Inventory List.

STATE REGULATIONS

PROPOSITION 65 STATEMENT: An ingredient in this product is on the California Prop. 65 list. When this product is used according to the label directions, exposure and thus risk is below the level which requires a Prop 65 warning.

16. OTHER INFORMATION

HMIS CODES

FIRE: 0 HEALTH: 2 REACTIVITY: 0 PROTECTION: -

NFPA CODES

FIRE: 0 HEALTH: 3 REACTIVITY: 0 SPECIAL: -

APPROVAL DATE: 12/09/1996

REVISION SUMMARY New MSDS

MANUFACTURER SUPPLEMENTAL NOTES: EPA FIFRA (Federal Insecticide, Fungicide and Rodenticide Act) Toxicity Categories: The EPA toxicity categories are based on the results of the acute toxicology studies. The toxicology findings are compared to the FIFRA criteria to determine the product label signal word, precautionary and first aid statements. The EPA FIFRA toxicity category summary:

EPA FIFRA Product Label Toxicity Rating
Toxicity Category Signal Word

I DANGER Most toxic and irritating
II WARNING
III CAUTION
IV CAUTION Least toxic and irritating

COMMENTS: For additional information concerning this product, call the SOLARIS Groups Consumer Helpline at 800-225-2883.

MANUFACTURER DISCLAIMER: This Material Safety Data Sheet (MSDS) contains health, safety and environmental information for you and your employees. It does not replace the precautionary language, use directions, or the storage and disposal information found on the product label. Information contained in this MSDS will help you to prepare for emergency response and to meet community right-to-know, emergency response and reporting requirements under SARA Title III and many other laws. Emergency response agencies and

health care providers will also find this additional information useful.

Use of this product is regulated by the U.S. Environmental Protection Agency (EPA) through the approved label copy. It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Monsanto Company and The Solaris Group make no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determinations as to its suitability for their purposes prior to use. In no event will Monsanto Company or The Solaris Group be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.